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Challenges and Opportunities of e-Learning: A case study of higher education in Thailand

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ABSTRACT

This paper examines the issues related to the implementation of e-Learning at the National Institute of Development Administration (NIDA), one of the best higher education institutions in Thailand. e-Learning at NIDA offered a promise of enhancing the quality of both teaching and learning, benefiting both faculty and students alike. For example, e-Learning would provide collaborative tools in order to facilitate the communication of both professors and students. Professors could assign assignments on e-Learning websites. A webboard would enable students to post questions and allow professors to respond to each student, and lectures would be recorded and posted on the e-Learning website so that students could review or even download them into a portable device, such as an iPod and/or cell phone. Despite the promises of e-Learning, there were significant obstacles to the implementation of the project. For example, there was a limited budget for its implementations, and the cost-benefit justification was not clear. Also, the e-Learning project faced resistance from some (old) professors that did not want to use e-Learning since they were comfortable with their old style of teaching. Some professors were also afraid of putting their materials online since it was felt that other professors might steal the content. The data collection methods for this study include in-depth interviews, focus groups, and observation, and the results indicate that e-Learning can dramatically change the process of learning and teaching. Also, e-Learning implementation involves not only technology but also people, teaching and the learning process. The issues investigated in this study can be used as a guideline for other e-Learning implementations.

Keywords

e-Learning, Information Systems in education, IT in developing countries

BACKGROUND OF THE NATIONAL INSTITUTE OF DEVELOPMENT ADMINISTRATION (NIDA)

NIDA is a government-supported institute with university status, and it focuses exclusively on graduate education. Its founding in 1963 was inspired by His Majesty the King Bhumibol Adulyadej's vision of advancing Thailand's development through the establishment of an advanced educational institute that would groom its students to serve as agents of national development change. Additionally, the early thinking was that NIDA would become an educational institute of higher learning that would attract many Thai scholars that would otherwise go abroad to pursue their studies. Over the intervening 45 years, NIDA, through its offering of Master's and Doctoral degrees in 22 fields, became one of the top universities in Asia. Although NIDA's vision has broadened over the years, it has remained committed to its founding purpose of "being the leading institute in Thailand through study, research and effectively serving the society in the business and administration fields." However, while its initial mission embraced support of national development in Thailand, NIDA's mission was expanded to encompass regional development in countries outside of Thailand, with the aim of producing advanced-degree graduates that could serve in the public, business, and non-profit sectors. This expanded mission was, in large part, in response to the recognition of the increasing interdependence of nations across the globe, as well as to the priorities enunciated in Thailand's Plan for Higher Education. With new challenges emerging in international cooperation, understanding, and service, NIDA sought—through teaching, research, and consulting—to provide its students with the requisite knowledge, analytical ability, and other skills necessary to address teaching and learning issues and to advance objectives at the community, national, and international levels. Thus it was that, over time, NIDA had developed into a dynamic, unique, service-oriented graduate institution that strived to meet many of Thailand's and the region's critical needs in the area of development administration. (See Exhibit 1 for NIDA's organizational structure.)

CURRENT ENROLMENT AND ENROLMENT TRENDS

In fiscal year 2005, NIDA had a total enrolment of 9,511 students across eight academic programs—which represented a 29% decline from enrolment in fiscal year 2004. There was speculation that the reason for these enrollment declines might have been the distance learning programs offered by other universities and graduate schools—programs that effectively widened the options available to students to pursue their educational studies while continuing full-time employment. The thinking behind this speculation was that by offering alternatives to classroom instruction (in some universities distance-Learning programs included abolition of the requirement to attend any classes at all), competing graduate schools were siphoning off student enrollment that might otherwise accrue to NIDA. However, in the absence of hard data supporting such thinking, it was not universally accepted within NIDA that the distance-Learning initiatives of competing schools was the main cause for NIDA's enrollment decline. In fact, an opposing view was that, more than anything, it was the prosperity of recent years (e.g., 2005 through 2008) that largely accounted for the declines—the reasoning being that robust economic conditions had created greater employment opportunities, which in turn motivated many prospective students to postpone further educational study.

Regardless of the reasons for the enrollment decline, NIDA's president, Professor Sombat Thamrongthanyawong, who had assumed office in April 2007, believed that the implementation of an e-Learning program at NIDA would enhance the quality of both teaching and learning, benefiting faculty and

students alike. Hence, in his view, NIDA needed to move in this direction, irrespective of the potential effects of other universities' distance-Learning programs on NIDA's enrollment. e-Learning, in his estimation, was a worthy programmatic undertaking in its own right, not necessarily as a defensive measure against the competitive thrusts of other universities, but rather as a strategic endeavor to upgrade teaching and learning throughout NIDA's educational programs. As a result, Professor Thamrongthanyawong assigned Dr. Pradit Wanarat, the Vice President for Academic Affairs at NIDA, to supervise the e-Learning initiatives in December 2007.

E-LEARNING: ITS NATURE, ITS DIFFUSION, AND ITS PROMISE

The intensive use of Internet-related technologies since the late-1990s greatly changed the role of computers in education, with enhanced accessibility of several distributed applications and services being among the major developments. One of the most significant Internet services has been e-Learning, the primary aim of which was to increase the dissemination of knowledge between teachers and learners, as well as to create an effective and efficient learning environment. By definition, electronic learning (e-Learning), simply was electronic learning or any learning facilitated by electronic means. Its modalities included computer-based training (CBT) with modules, CD-ROM training, web-enabled training, and Internet learning (Thomas & Cunningham, 2003). e-Learning courses provided students with an opportunity to continue their education while simultaneously continuing to pursue personal and career development. In other words, it created a more flexible way of learning. The online format offered students a great deal of flexibility in terms of when they studied, how they studied, and how quickly they covered and mastered the material.

THE DRAMATIC SPREAD OF E-LEARNING

For a number of reasons, e-Learning was becoming increasingly popular in universities and in other learning environments in a number of national settings. It was part and parcel of the educational revolution that was taking societies from a print to a digitized culture, with the corresponding demand to deliver knowledge to educate large numbers of people over vast areas beyond the boundaries of time and place. Various e-Learning technologies were being utilized to deliver courses and sometimes entire degree programs. For example, Indiana University offered an MBA degree program in which students took courses entirely online without ever having to go to the campus.

Although e-Learning made up a very small percentage of instructional expenditures in the education industry in 2000 (accounting for only 7 billion dollars, or less than 1 percent of the total), it grew at a rate of approximately 50% per annum between 2000 and 2005, rising to 40 billion dollars of instructional expenditures in 2005 (Rukstad & Collis, 2001). The increasingly competitive environment confronted by universities, tightening budgets, lower enrolments, and "time and place" flexibility increasingly demanded by adult learners—all of these were major driving forces behind the explosive rates of growth. In response, universities, including graduate schools, were being forced continually to review their curricula and the methods by which instruction was delivered to students. As part of their long-term strategy, many schools have aimed at increasing enrollment numbers, decreasing the number of extra-hired teachers, and offering more flexible schedules to

target populations seeking education and training. With success in reaching new part-time, non-residential, non-traditional students has come a dramatic surge in demand for distance learning options.

Further, e-Learning has been adopted by educational institutions outside those in the United States. In Israel, for example, the Virtual Tel-Aviv University was launched in the 2000-2001 academic year in response to the government's initiative to advance the implementation of learning technologies in Israeli higher education (Shemla & Nachmias, 2007). Additionally, universities and specialized training institutions in various Southeast Asian nations, for example, Thailand, Malaysia, and the Philippines, among others, have also moved in the direction of incorporating online courses into their curricula.

THE PROMISE OF E-LEARNING

First and foremost, with the flexibility inherent in online course instruction, students and trainees—particularly adult ones—were afforded the ability to tailor their learning experiences at times and in settings that were most convenient to them on a largely individually basis. As earlier stated, for educational and training institutions, this reality opened a potentially vast, and hitherto, only partially tapped, reservoir of students that might not otherwise be able or willing to alter their career or family endeavors sufficiently to enable them to attend face-to-face classes in traditional settings.

However, as suggested by research conducted on the link between technology and learning, not all e-Learning courses were an overwhelming success. Poorly designed online experiences that de-motivated learners with repetitive, boring functionality and other frustrations served as a continuous caution to institutions desiring to utilize e-Learning instructional modalities.

In addition, the development costs for online courses were generally considerably higher than those for the traditional face-to-face classroom setting. For example, IBM Corporation indicated that the cost for developing online training was five times higher than for classroom courses. Offsetting this reality, however, was the fact that, in IBM's experience, the delivery costs for online courses were much lower than for classroom courses once the basic infrastructure (e.g., computers, applications, network, etc.) was in place.

Hence, the potential benefits that would accrue to institutions from a well-designed and well-received online program were non-trivial. For example, at IBM Corporation—with its hundreds of course offerings on different subject matter, in different parts of the globe, and throughout the year—managers averred that the savings in travel costs alone validated the move toward increased usage of online course technology (Rukstad & Collis, 2001). Similarly, Cisco Systems reported savings of \$50 million in travel expenses associated with bringing staff to headquarters or other training sites. Several consulting firms indicated savings of 50% in time and 40% – 60% in costs upon replacing traditional classroom training settings with online courses (Rukstad & Collis, 2001).

THE E-LEARNING INITIATIVE AT NIDA

While not unaware of the potential cost savings of offering NIDA courses online, President Thamrongthanyawong's decision to transform NIDA into an "e-University"—with "e-Learning," "e-Testing," and an "e-Office"—was guided by his conviction that NIDA should begin aggressively utilizing information

technology to supplement the efficiency of learning and teaching. As pointed out by Dr. Pradit Wannarat, the assigned chairman of the new e-Learning Committee since November 2007, e-Learning at NIDA was envisioned as a supplement to, not a replacement for, classroom teaching (see appendix 2 for the implementation of e-Learning at NIDA). He stated:

The objective of this project is to use e-Learning as complementary and supplementary in class. e-Learning would help enhance the efficiency of teaching and learning. e-Learning will be applied to provide a summary of lessons taught in traditional classes for students to review before examination. That also benefits students who skip that class. The summaries will be provided in the form of flash files that combine teaching slides and the voice of the professor. Moreover professors can use e-Learning to communicate with students more easily. Professors can use e-Learning to assign homework to students, including providing extra knowledge to students outside the class period. (see exhibit 7)

With reference to the growing trend among many universities, both domestically and abroad, to offer online degrees that enabled students to “attend” classes from any setting and at any time, Dr. Wannarat further pointed out that NIDA had no immediate plans to follow suit. He emphasized that “NIDA does not [now] aim to develop and use e-Learning to provide full courses for online degrees, but NIDA is attempting to implement e-Learning as a class complement and supplement. Online degrees may be established at NIDA but this will happen in the distant future.”

Implementation of the e-Learning program was expected to yield benefits to students and faculty alike, and in several ways. First, it was expected to benefit students as a group, as Dr. Wannarat further explained:

e-Learning will benefit students who skip classes. They can access websites and review class summaries online to study the sessions that they missed. The summaries will be provided in the form of flash files that combine teaching slides and the voice of the professor. Also, students can use the summary of lessons to review for examinations.

Additional benefits to students would accrue, explained Assistant Professor Suttichai Suthithosadham, director of the Information Systems Education Center (ISEC), whom Dr. Wannarat had assigned joint responsibility, along with Dr. Pramote Luenam, for the technical aspects of the implementation of the e-Learning system. He elaborated:

With such supplementary e-Learning that would be implemented at NIDA, the lecture-based contents posted online will enable students to review class materials in preparation for their examination. Moreover, the LMS or Learning Management System will enable students to communicate with professors and peers.

Dr. Suthithosadham asserted further that e-Learning would enhance communication between students and their professors, at least in part by creating a more efficient and effective mode of communication. Pointing out the increased ease of communication that e-Learning would bring, he allowed that “[It] will help to enhance the relationship between students and professors since they can contact each other more easily at anytime and anywhere.”

These were the anticipated benefits of the new e-Learning system. However, realizing these benefits entailed a series of steps on the part of both Dr. Suthithosadham's Information Systems Education Center and the faculty itself.

IMPLEMENTATION STEPS TAKEN TO DATE

Dr. Luenam, co-leader of the project with Dr. Suthithosadham, explained that NIDA's e-Learning system under development consisted of two main parts—the content side and the system operations side, which was called the Learning Management System (LMS). For e-Learning to occur, both parts had to be put in place. He explained:

. . . The appropriate format of learning content is in electronic format, such as PowerPoint, and file video that can be online or be played on the computer. In terms of content development, there are many people involved: a camera man and staff for production, a VDO auditor to edit the video that has been shot to match with the teaching slide (the teaching slide must be shown at the same time with the lecturer who gives the lecture). This process takes time, about 70-80% of the entire process. Later, we get the content, and combine it with the LMS part. When you go into the NIDA e-Learning webpage, you choose the subject that you want to learn. You may need to register. There must be a screening system to screen the student who comes to this website. The LMS also includes a channel for students and professors to communicate at the website, a channel for sending homework, and a channel for students to communicate with their groups.

SOME CONSIDERATIONS AS IMPLEMENTATION PROCEEDED

As NIDA embarked on its quest to become an institution in which e-Learning would be a central feature of its delivery of educational services to its students, there was no institutional experience within the organization upon which NIDA could draw as a guideline for the new venture. However, over the years, a number of research articles had been published concerning issues of relevance to the implementation of NIDA's approach to e-Learning. Early in the implementation process, these articles were shared and discussed within Dr. Wanarat's e-Learning Committee, as well as among the staff in the Information Systems Education Center (ISEC), who were assigned the primary responsibility for designing and overseeing the technical aspects of the e-Learning system.

A review of studies examining e-Learning programs in several non-Thai institutions brought to the surface a wide range of findings with varying degrees of potential applicability to NIDA's efforts. Among these were the following:

- Factors Predictive of e-Learning Acceptance by Faculty Personnel: e-Learning adoption and e-Learning readiness were highly correlated with the training provided to targeted users, as well as with the degree of confidence (Agboola, 2006). From this, Dr. Wanarat's e-Learning Committee concluded that the provision of adequate training in the use of NIDA's e-Learning system would be of cardinal importance. The Committee further speculated that faculty confidence in using the new system might well be a byproduct of the adequacy of the training received.

- Critical Success Factors Pertaining to Commonly-Used Web-Based Technologies: Potential barriers to faculty use of Web-based learning approaches included: insufficient time to learn how to use such technology and then develop appropriate courses; lack of adequate training; lack of adequate technical support; insufficient resources; lack of teaching support; and perceived lack of institutional recognition of and rewards for efforts to integrate Web-based technologies into teaching (Pajo & Wallace, 2001). From this, the e-Learning committee took under advisement the need, according to this particular research, to “implement a flexible and dynamic strategy in order to lessen these barriers.”
- Age-Related Determinants of Usage of Computers in Teaching: Confidence in using computers in teaching was correlated with the age of faculty members, with younger lecturers displaying higher levels of confidence than older ones. Older faculty members were more likely to feel that their exposure to, and skills in the usage of, ICT tools compared unfavorably to those of their own students, thus dampening their enthusiasm for adopting e-Learning technologies in teaching (Murphy & Greenwood, 1998). Here again, the Committee concluded that training and confidence-building would be critical to the realization of the objective of gaining faculty willingness to teach with e-Learning tools.
- Rules of Effective e-Learning: From a study of both faculty and students at a U. S.-based university, a researcher set forth what he considered to be ten essential rules for effective e-Learning: (i) a shared learning-centered vision; (ii) a comprehensive course design process; (iii) customized scoring guides to suit e-Learning (e.g., clearly detailed); (iv) group work strategies; (v) effective facilitators (i.e., online facilitators to provide suggestions); (vi) faculty training and support; (vii) expectation framing (e.g., a document outlining expectations at the outset of a course); (viii) meaningful faculty feedback to students; (ix) a commitment to continuous improvement of the system; and (x) the monitoring and evaluation of continuous improvement endeavors, with coordinated input from all stakeholders (including faculty and learners) (Barron, 2006). Most of these “rules” were taken under consideration, in different ways and at different points in time, as the Committee deliberated on the multiple issues requiring decision-taking on their part.

In addition to these somewhat global examinations of e-Learning experiences at institutions outside of Thailand, a couple of recent research studies into e-Learning programs at Thai universities were available to, and pondered by, Dr.Wanarat’s Committee. Among the salient findings gleaned from these reports were the following:

- Experienced Strengths and Weaknesses of e-Learning: The primary strengths of e-Learning programs for Thai post-graduate studies were reported as (a) savings in time and transformational costs, (b) student perceptions of greater freedom to discuss their thoughts openly, (c) reduced teaching and learning costs over the long run, and (d) more time for lecturers to do research and attend to non-instructional professorial duties. Juxtaposed against these strengths were several reported weaknesses; i.e., students’ lack of time management skills and self-discipline, information-searching skills, and language skills. The research found also that students’ preferred mode of e-Learning was that in which

study with lecturers constituted about 80% of their time, while self-controlled study via e-Learning technologies comprised just 20% of time (Chockreansukjai, 2007).

- **Primary Modality of e-Learning Programs in Thailand and the Most Critical Elements:** Among institutions of higher education in Thailand that employed e-Learning systems, the predominant mode of usage was the supplementary one—one in which e-Learning supplemented, as opposed to supplanted, other modalities of instruction (e.g., classroom instruction). Infrastructure, utilization of programmed computers, and the learning environment of the institution, these were the elements deemed most critical to the success of e-Learning (Chockreansukjai, 2007).

IMPLEMENTING E-LEARNING: ISSUES, CHALLENGES, AND OBSTACLES

Realization of the vision of incorporating e-Learning into NIDA's mode of operations was very much contingent on the e-Learning Committee's ability to address several impediments that surfaced almost simultaneously with the announcement of the new initiative and the formation of the Committee. One particular obstacle, the paucity of broadband connections to enable students to access multimedia files over the Internet, would likely remain a drawback until such time as emerging broadband technologies (e.g., fiber optics, 3G, and Wimax) became widely available in Thailand. Of this, the Committee had taken notice, even as it pushed on with the implementation of the new system.

However, apart from current broadband limitations that were largely beyond the Committee's ability to impact, there were several additional challenges that had proven difficult to resolve. These involved cost considerations, support staff sufficiency, stakeholder resistance (including the potentially contentious issue of sorting out the ownership of e-Learning content). To be sure, planning and system design tasks could proceed while resolution of these issues was being discussed. However, Dr. Wanarat and his fellow Committee members knew well that a fully functional e-Learning system could not be completed and rolled out until at least some of these challenges had been addressed.

THE CHALLENGE OF HIGH COST

In general, one of the biggest constraints confronting IT projects in general is that of cost—or perhaps more accurately, high cost relative to budgetary resources available to the project. In this regard, NIDA's experiences were proving to be no different than those of other institutions that had pursued a similar vision. Pointing out that e-Learning programs held the promise of yielding many benefits to the Institute, Dr. Wanarat also noted that NIDA's budget contained a limited allocation for the project. He stated: "Even [though] e-Learning will be used as a class complement and supplement only, the expenditure [required] for [the development of] e-Learning lessons is quite high—about TH Baht 300,000 per [course]."

While admitting that this sum (TH Baht 300,000 or approximately \$US 9,300) was miniscule in comparison to other types of e-Learning projects, whose costs could easily amount to millions of dollars, Dr. Wanarat hastened to add that the cost for e-Learning included not just the hardware, software, and the network, but also the ongoing costs of maintenance, upgrades, and personnel. Viewed from a total cost perspective, the current budgetary allocation for implementation of the project was a serious impediment. He elaborated: "Personnel, including human resources for supporting e-Learning classes, are now scarce [in NIDA]. For only 1 or 2

subjects, we can do it ourselves; but, when all 27 subjects are ready to record, we need to outsource all through the process.”

In this assessment, Drs. Suttitossatam and Luenam of the ISEC, who bore the primary responsibility for developing the new system and making it operational, were in complete agreement; that budget constraints were proving to be one of the main obstacles to the Project. “ISEC still lacks the necessary equipment in content set up, such as the equipment for videotaping the lectures,” explained Dr. Suttitossatam. “The budget constraints include insufficient competent personnel to clip the lecture-based content.” As project leader, Dr. Luenam, who was even more emphatic in his assessment. “We do not have an adequate budget to complete [the e-Learning Program],” he stated.

THE CHALLENGE OF USER RESISTANCE

One of Dr. Wanarat’s and the e-Learning Committee’s biggest concerns was that of user resistance. Given that e-Learning would inevitably change both the way the lecturers taught and the way that students learned, the developers were very much aware that they necessarily had to take the prospect of resistance into account. They were mindful of the fact that a major cause of failure of IT projects is user rejection of the new technology. Of concern to Dr. Wanarat and other senior administrators was that e-Learning would be useless if it were to come to pass that the faculty and/or students refused to use it after its implementation.

In order to minimize the prospect that the new system would be resisted by faculty and student stakeholders, the Committee planned to introduce the changes gradually. This approach, it was thought, would enable the targeted users—faculty and students—to acclimate themselves to the workings of the system and begin to see the benefits without being deluged by the otherwise enormity of a new way of doing things. Explained Dr. Suttitossatam:

There are problems and obstacles challenging the achievement of e-Learning implementation at NIDA, but the gradual adoption—step by step from the current content base (or supplementary e-Learning) to the higher level of online degree—will make the e-Learning project at NIDA achievable. . . . The stakeholders would gain benefit from e-Learning implementation—students could have a class review online that would benefit them for examination preparation, while professors would gain from the tools facilitating their courses, such as the LMS. Moreover, both of them would benefit from the virtual communication with online communication tools such as webboards.

To overcome resistance within the faculty, the Committee decided to proceed on a segment-by-segment basis, particularly with respect to resisters within the faculty. Dr. Luenam elaborated:

Professors can be divided into 3 groups. First are the “refusers”—[those] who refuse to join this project. Second are the professors who are interested, but [who] are too busy to join. Third are the supporters. The first two groups are about 70-80% of professors. We plan to start [with] the last group. The problem is how to make the first two groups accept this project.

One important aspect of faculty resistance that remained to be sorted out was that of ownership of faculty lectures and research—the question of who would own the copyright to the intellectual property produced by the faculty and made available electronically via the e-Learning system. Dr. Wanarat and the Committee were aware that this was an area in which precedent and law were still unfolding. In some settings, professors had argued that because they were the content providers, they should also own the right to any books that they published. Further, they argued, they should own the rights to their intellectual property that was “packaged” and sold online.

Two related concerns were also playing a role in faculty resistance to e-Learning—and its requirement that pertinent components of their course items be placed online for use by their students. First, there was fear of loss of control over their intellectual property, thereby depriving them of some of the benefits of their labors. “If anyone can access my material over the e-Learning web site, someone might steal my intellectual property, such as teaching notes and slides, and take them as their own,” pointed out one NIDA faculty member. Second, there was the fear that if faculty teaching materials were deemed to be the property of the School, then in the aftermath of creation of the e-Learning system the faculty might be declared redundant. As one NIDA professor expressed it: *“If all of my lectures are recorded and belong to the school, the school does not need me anymore. What good am I? Why would I want to collaborate on a project that might devalue me?”*

As for the student stakeholder group, the Committee had discussed potential problems concerning resistance, but in the absence of much concrete information concerning their likely reactions found itself dealing almost totally in the realm of speculation. Thus, the Committee’s discussions to date had raised more questions than definitive approaches to overcoming potential resistance to use of the new e-Learning system, as indicated by Dr. Luenam’s thoughts on the matter:

The problem is if the e-Learning is not compulsory, will they attend? For example, if we provide a forum for them, will they use it to communicate with other students, or [will] they prefer to meet each other face to face? Or [will] they just want to contact each other via telephone?

REFLECTION FROM THE AUTHOR

The author volunteered to participate in the e-Learning project for Management Information Systems course. The transition period was difficult since students were not familiar with? review materials online. The author, in the beginning, needed to force students to review materials online before coming to class by giving pop quizzes in the beginning of each class (see appendix 2). The students reported that they understood the materials better. In terms of teaching, the e-learning materials, especially the video lecture, helped the professor to spend more class time on classroom discussion rather than on the lecture, and the students were more engaged in being active learners. However, since a broadband connection is still not prevalent in Thailand, there were some reports about internet connection problems. Also, posting lecture videos online might give some students the incentive not to attend class.

CONCLUSIONS

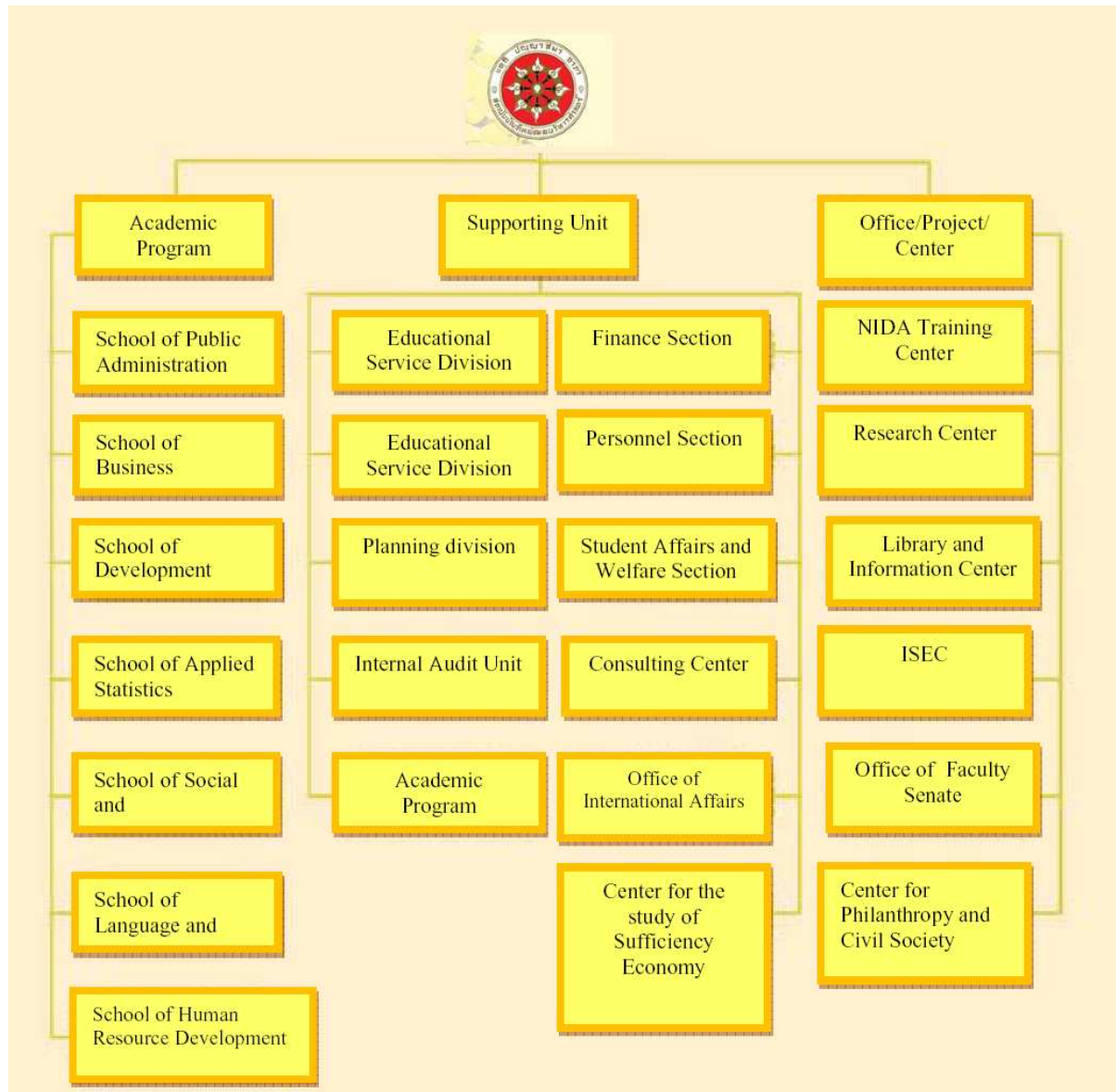
The intensive use of Internet-related technologies during the last decade has changed the role of computers, which now enhances accessibility of several distributed applications and services. e-Learning is one of the most significant Internet services which aim at increasing the dissemination of knowledge between teachers and learners. It also promises to create an effective and efficient learning environment. This paper describes the challenges and opportunities of e-Learning in one of higher institutions in Thailand. E-Learning at NIDA promises to provide quality teaching and learning for both professors and students. However, the benefit of e-Learning also comes with a cost, since the new e-Learning project would change how teachers teach and how students learn. The results from this case research indicate that although e-Learning can enhance the effectiveness of teaching and learning, implementation needs to involve not only technology but also people, teaching, and the learning process. The issues studied in this case research can be used to guide e-Learning implementation in other higher educational institutions.

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APPENDIX 1

NIDA Organization Structure



APPENDIX 2

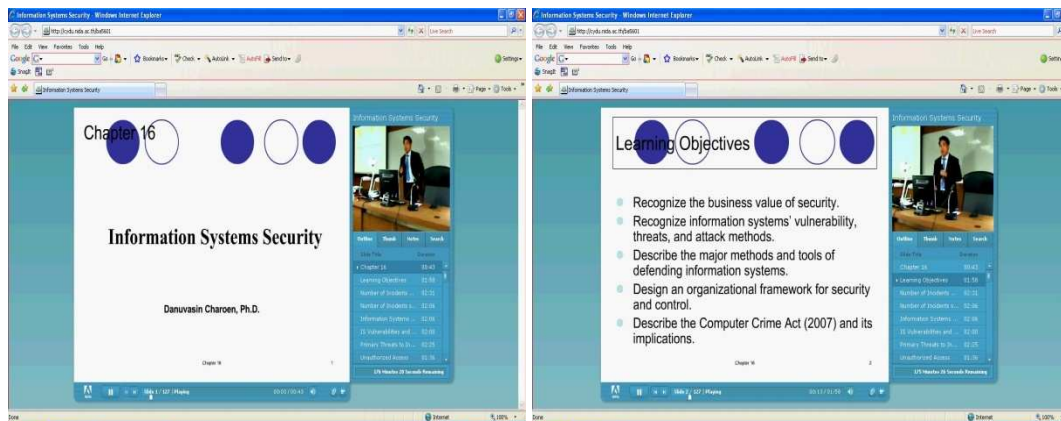
The implementation of e-Learning at NIDA



To produce the content, the developers record the lecture in a classroom.

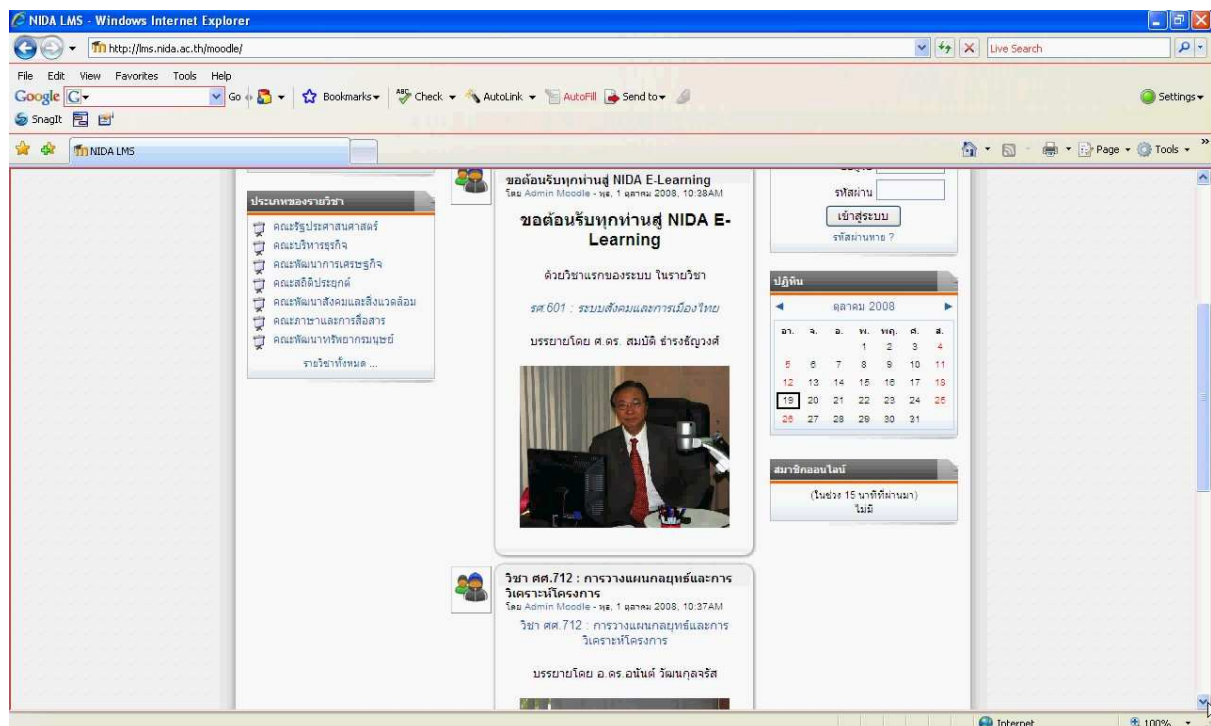


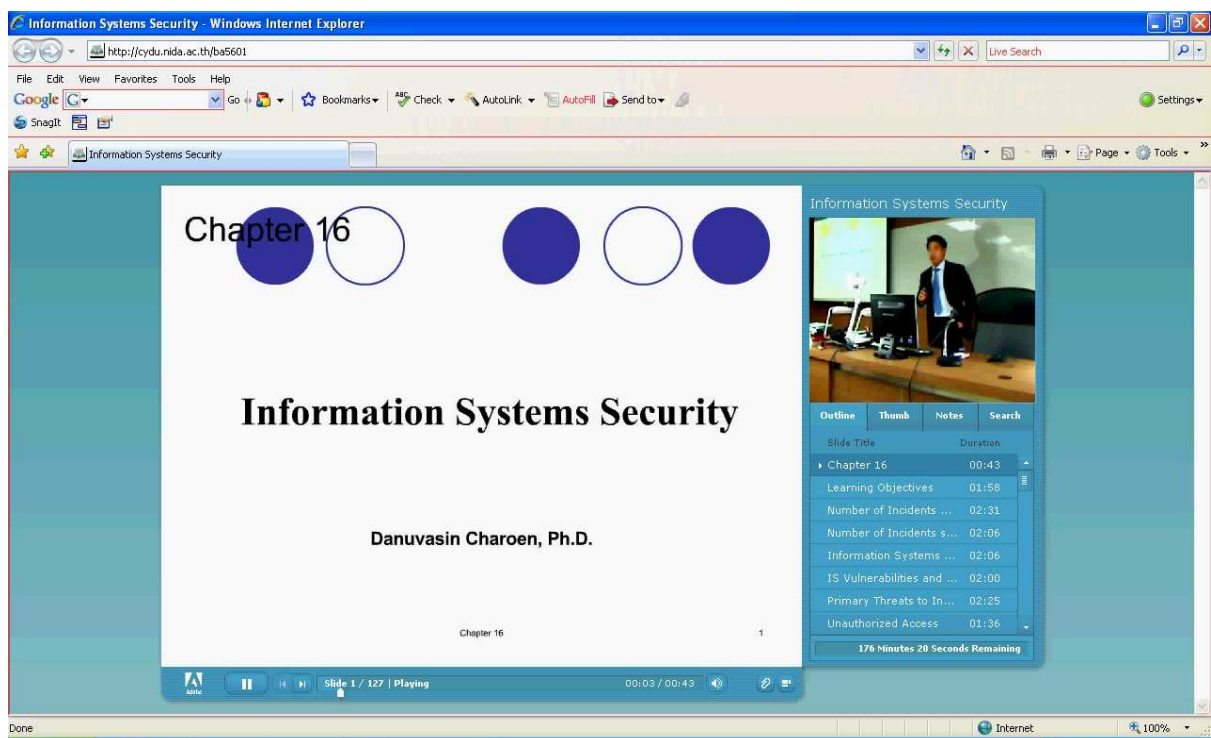
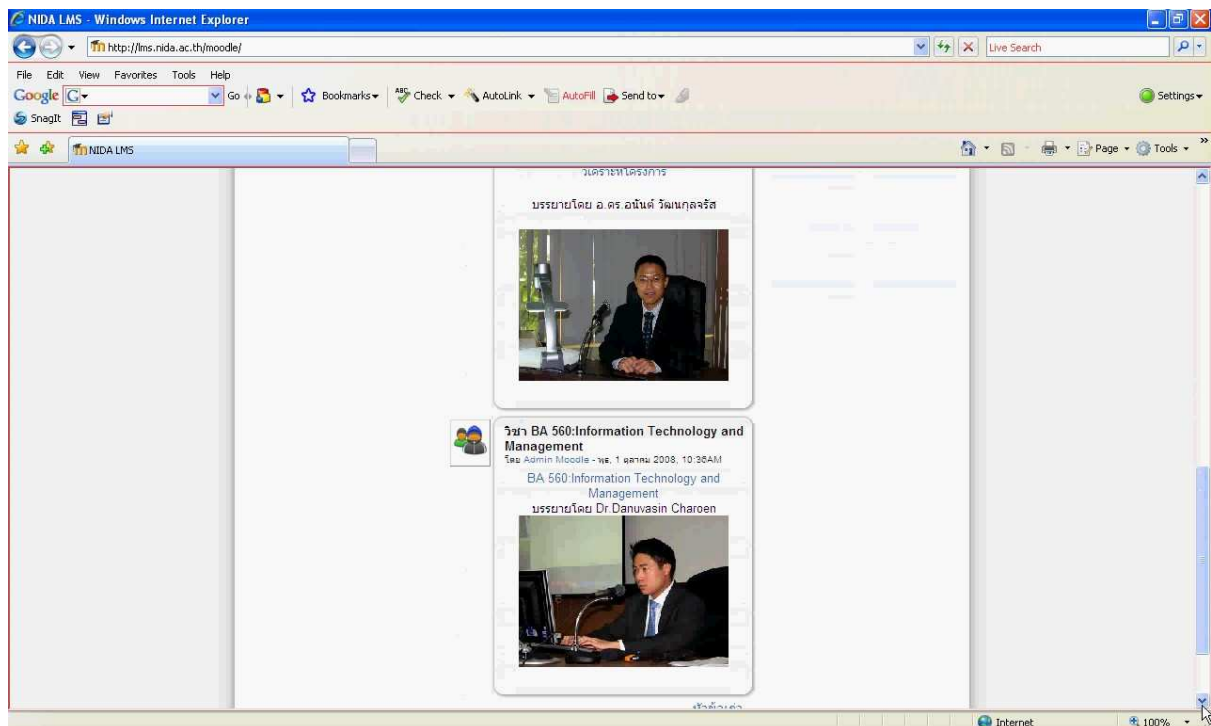
Students in a class



The lecture slides together with the video are posted on the e-Learning web site (lms.nida.ac.th)

Currently, the NIDA e-Learning project is still a pilot project. Three professors participate in it on a voluntary basis.





Example of e-Learning material